



US009448598B2

(12) **United States Patent**  
**Wang et al.**

(10) **Patent No.:** **US 9,448,598 B2**  
(45) **Date of Patent:** **Sep. 20, 2016**

(54) **POINT OF SALE DEVICE**  
(71) Applicant: **ENNOCONN CORPORATION**, New Taipei (TW)  
(72) Inventors: **Kun-Ming Wang**, New Taipei (TW);  
**Shih-Chi Liu**, New Taipei (TW)  
(73) Assignee: **ENNOCONN CORPORATION**, New Taipei (TW)  
(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 65 days.

(21) Appl. No.: **14/591,577**

(22) Filed: **Jan. 7, 2015**

(65) **Prior Publication Data**

US 2016/0147268 A1 May 26, 2016

(30) **Foreign Application Priority Data**

Nov. 25, 2014 (TW) ..... 103140755 A

(51) **Int. Cl.**  
**G06F 1/16** (2006.01)  
**G06F 1/18** (2006.01)  
(52) **U.S. Cl.**  
CPC ..... **G06F 1/182** (2013.01); **G06F 1/187** (2013.01)  
(58) **Field of Classification Search**  
CPC combination set(s) only.  
See application file for complete search history.

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

6,003,008 A \* 12/1999 Postrel ..... G06F 1/183 235/381  
6,053,410 A \* 4/2000 Wike, Jr. .... G06F 1/16 235/462.43  
6,053,411 A \* 4/2000 Nugent, Jr. .... G07G 1/0018 235/462.43  
6,053,412 A \* 4/2000 Wike, Jr. .... G06F 1/16 235/375  
6,062,478 A \* 5/2000 Izaguirre ..... G06F 1/16 235/462.43

6,807,055 B2 \* 10/2004 Usui ..... G06F 1/1632 361/679.4  
7,017,803 B2 \* 3/2006 Ichikawa ..... G07G 1/0018 235/379  
7,146,325 B2 \* 12/2006 Yamakawa ..... G06Q 10/083 705/21  
7,652,876 B2 \* 1/2010 Moscovitch ..... F16M 11/04 345/1.3  
D614,687 S \* 4/2010 Ono ..... D18/4.5  
D615,583 S \* 5/2010 Ono ..... D18/4.5  
8,179,671 B2 \* 5/2012 Kaneko ..... G06F 1/187 361/679.34  
8,550,343 B2 \* 10/2013 Ko ..... G07F 7/0886 235/383  
8,982,550 B2 \* 3/2015 Kaneko ..... G06F 1/187 361/679.34  
2004/0150945 A1 \* 8/2004 Mache ..... F16M 11/00 361/679.21  
2010/0177473 A1 \* 7/2010 Wu ..... F16M 11/10 361/679.21  
2012/0224317 A1 \* 9/2012 Cheng ..... G07G 1/0018 361/679.21  
2015/0077916 A1 \* 3/2015 Liu ..... G06F 1/1613 361/679.27  
2015/0149311 A1 \* 5/2015 Ward ..... G07G 1/0018 705/24  
2016/0005274 A1 \* 1/2016 Wang ..... G07G 1/0018 361/679.58

**FOREIGN PATENT DOCUMENTS**

TW M299885 10/2006  
TW M322036 11/2007  
TW 201131335 9/2011

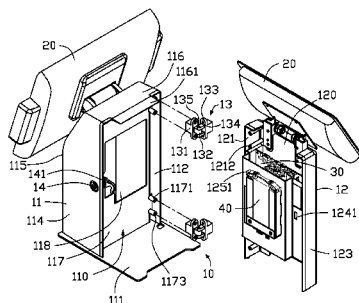
\* cited by examiner

*Primary Examiner* — Lisa Lea Edmonds  
(74) *Attorney, Agent, or Firm* — Zhigang Ma

(57) **ABSTRACT**

A point of sale (POS) device is provided that includes a main body having a receiving space, a cover that is rotatably connected to the main body for covering the receiving space, a circuit board, and a storage device that is removably mounted in the cover. The POS device further includes two displays that are mounted outside of the main body and the cover. The main body and the cover are mechanically coupled by two hinges and a lock. Two ends of each hinge are respectively connected to inner sides of the cover and the main body at a first side. The lock is provided at a second side, which is opposite the first side, to lock the cover to the main body.

**10 Claims, 5 Drawing Sheets**



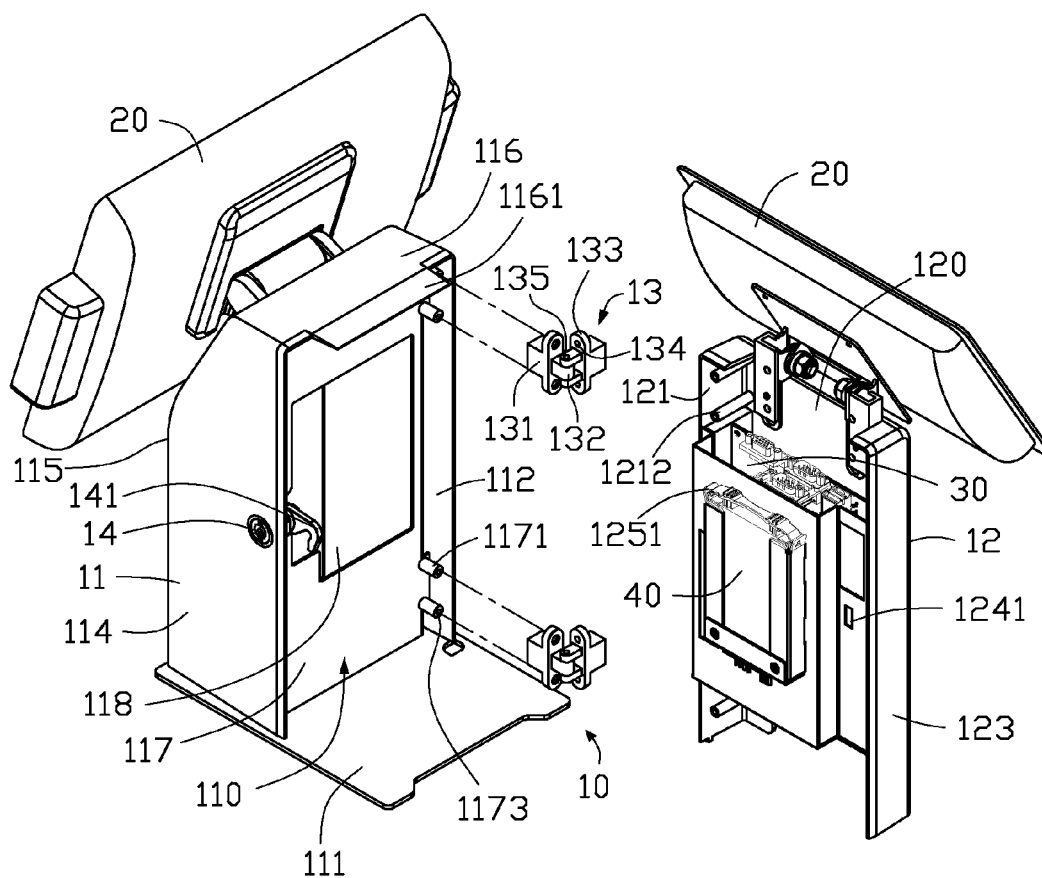


FIG. 1

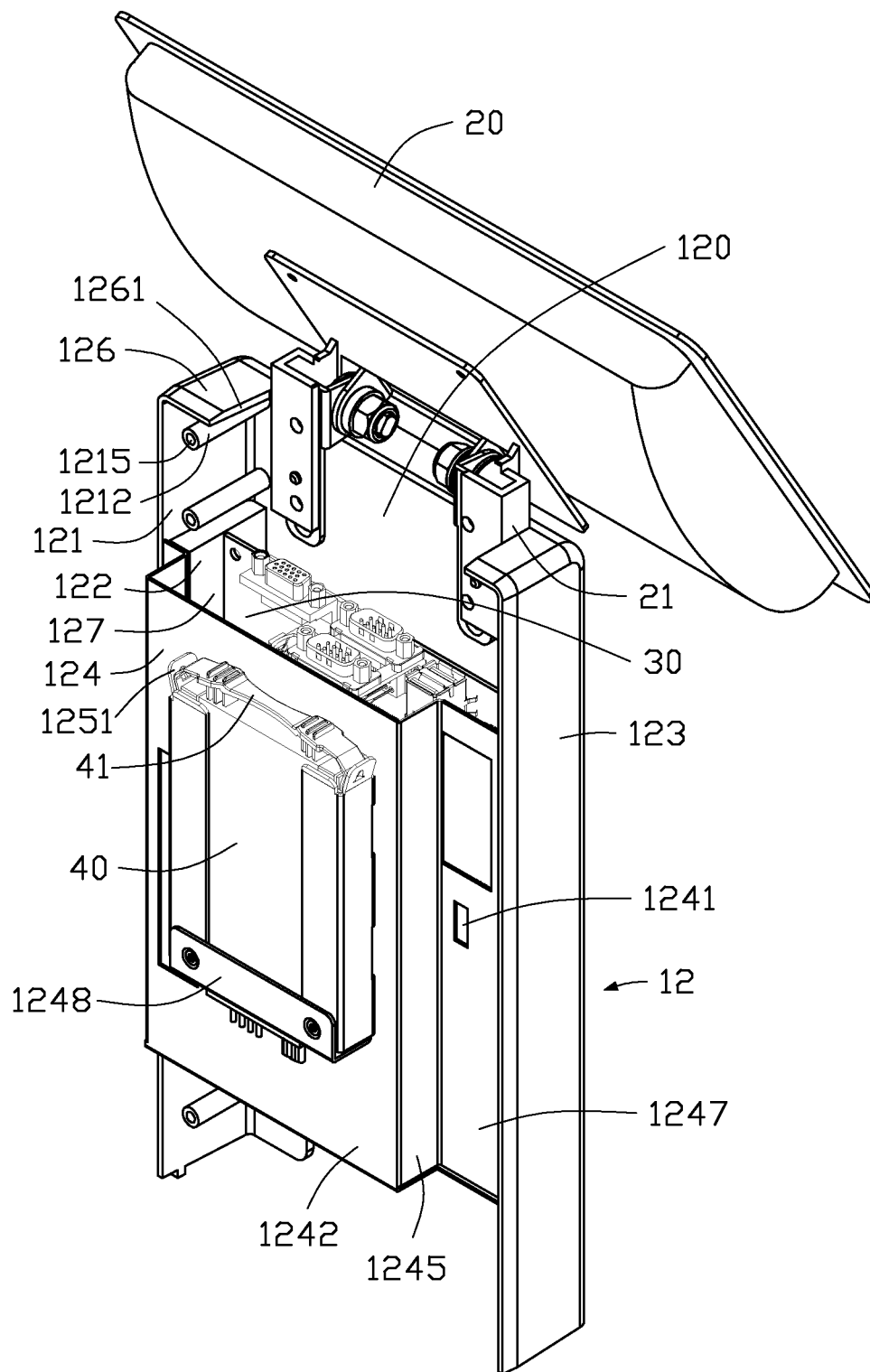


FIG. 2

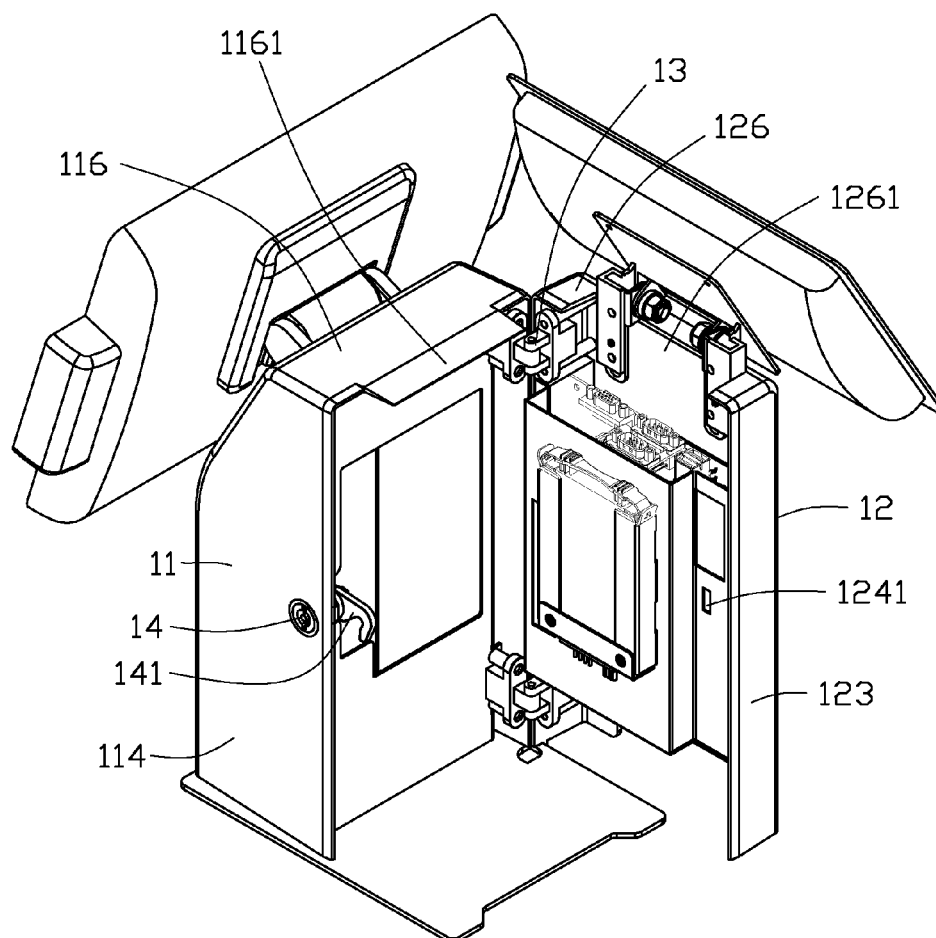


FIG. 3

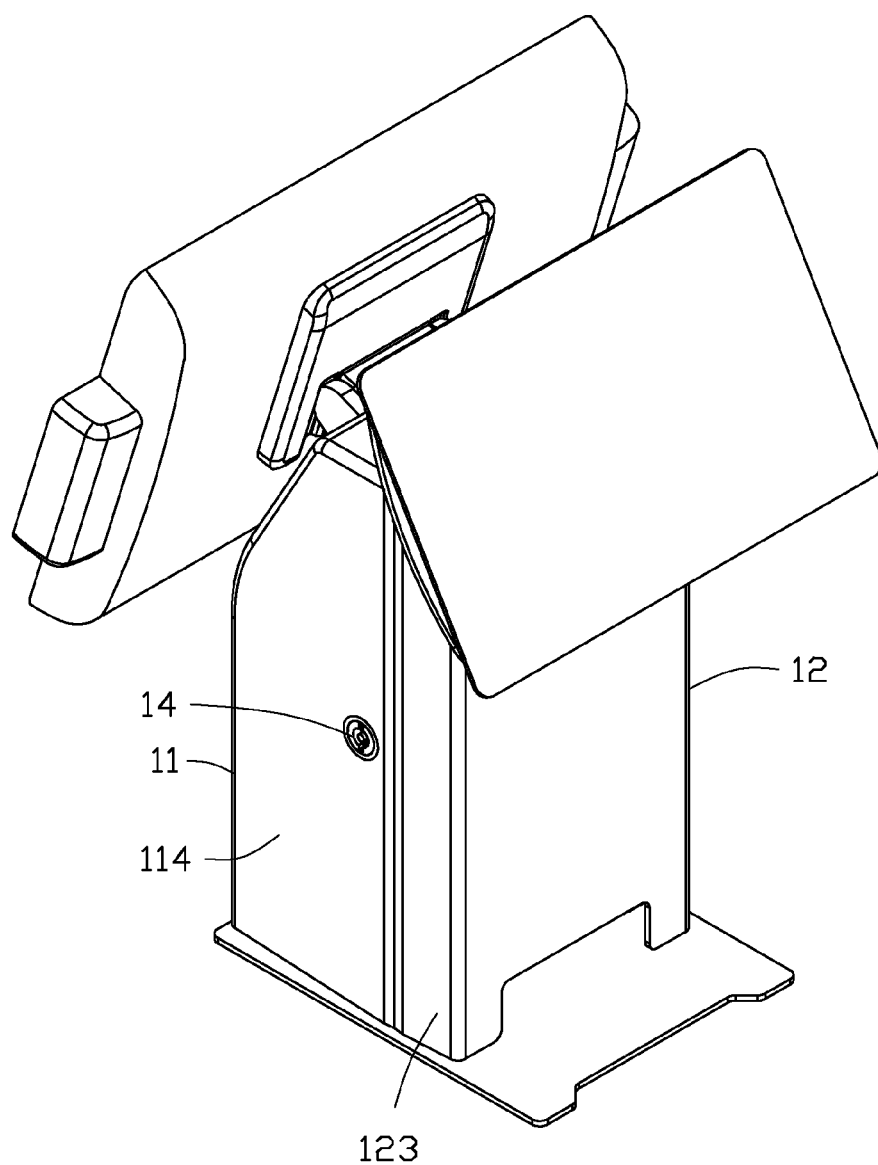


FIG. 4

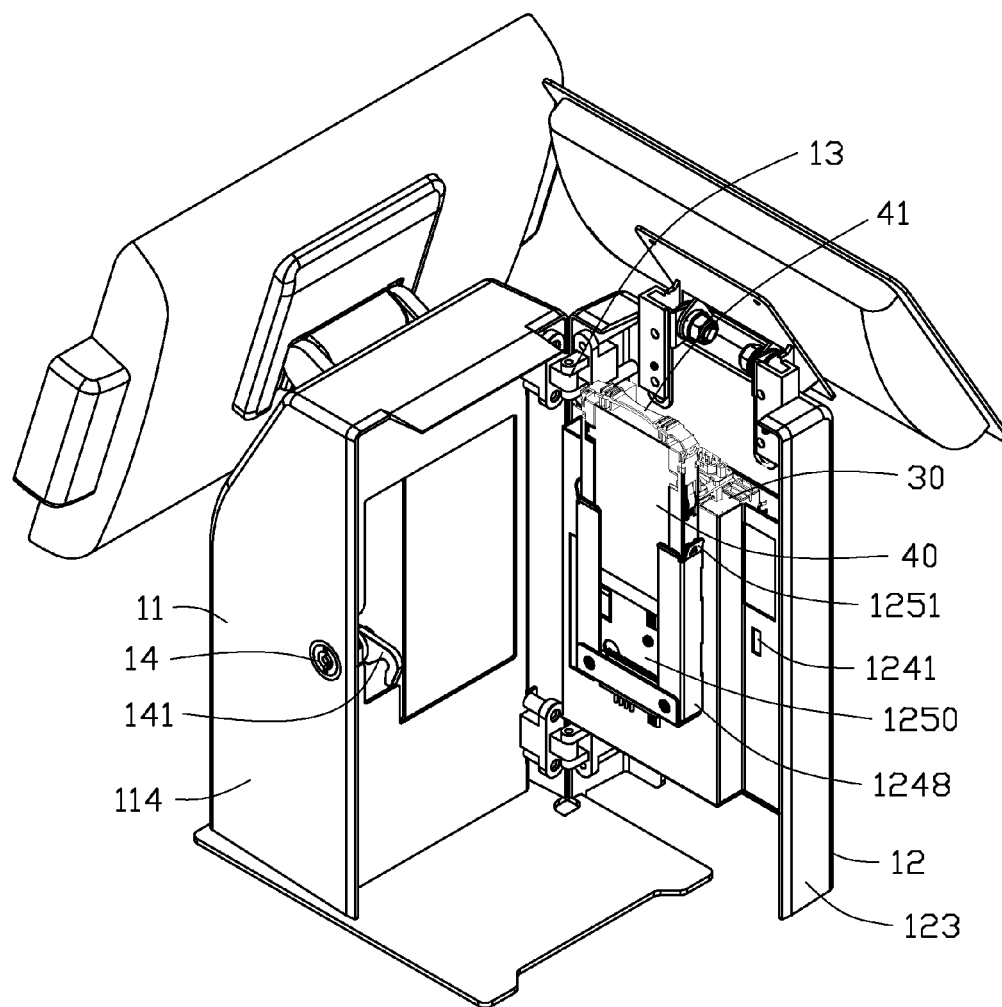


FIG. 5

1

**POINT OF SALE DEVICE****FIELD**

The subject matter herein generally relates to a point of sale (POS) device. 5

**BACKGROUND**

A cover of a traditional point of sale (POS) device is assembled by screws and rivets. 10

**BRIEF DESCRIPTION OF THE DRAWINGS**

Implementations of the present technology will now be described, by way of example only, with reference to the attached figures. 15

FIG. 1 is an exploded, isometric view of an embodiment of a point of sale (POS) device.

FIG. 2 is a partial enlarged view of FIG. 1. 20

FIG. 3 is a partial assembled, isometric view of the POS device of FIG. 1.

FIG. 4 is an assembled, isometric view of the POS device.

FIG. 5 is an isometric view of the POS device in an open state. 25

**DETAILED DESCRIPTION**

It will be appreciated that for simplicity and clarity of illustration, where appropriate, reference numerals have been repeated among the different figures to indicate corresponding or analogous elements. In addition, numerous specific details are set forth in order to provide a thorough understanding of the embodiments described herein. However, it will be understood by those of ordinary skill in the art that the embodiments described herein can be practiced without these specific details. In other instances, methods, procedures and components have not been described in detail so as not to obscure the related relevant feature being described. Also, the description is not to be considered as limiting the scope of the embodiments described herein. The drawings are not necessarily to scale and the proportions of certain parts may be exaggerated to better illustrate details and features of the present disclosure. 30

Several definitions that apply throughout this disclosure will now be presented. 35

The term “coupled” is defined as connected, whether directly or indirectly through intervening components, and is not necessarily limited to physical connections. The connection can be such that the objects are permanently connected or releasably connected. The term “comprising,” when utilized, means “including, but not necessarily limited to”; it specifically indicates open-ended inclusion or membership in the so-described combination, group, series and the like. 40

The present disclosure is described in relation to a point of sale (POS) device.

FIG. 1 and FIG. 2 illustrate an embodiment of a POS device. The POS device comprises a housing 10, two displays 20, a circuit board 30, and a storage device 40. 45

The housing 10 comprises a main body 11, a cover 12, and a plurality of hinges 13.

The main body 11 comprises a base board 111, a first side board 112, a second side board 114, an outer board 115, a top board 116, and a support board 117. The first side board 112 and the second side board 114 are connected to two opposite sides of the base board 111. The outer board 115 is attached 50

2

to the base board 111, the first side board 112, and the second side board 114. The top board 116 is attached to the first side board 112, the second side board 114, and the outer board 115. The support board 117 is attached to the base board 111, the top board 116, the first side board 112, and the second side board 114, and is opposite to the outer board 115. A side of the support board 117 back to the outer board 115, the base board 111, the top board 116, the first side board 112, and the second board 114 cooperatively define a receiving space 110. An opening 118 is defined on a middle portion of the support board 117. Two pairs of fixing pillars 1171 respectively protrude from a top and a bottom of the support board 117, near the first side board 112. Each fixing pillar 1171 defines a connecting hole 1173 perpendicular to the support board 117. A lock 14 is installed on a middle portion of the second side board 114 away from the outer board 115. A latch 141 is mounted to an inner side of the second side board 114 and connected to the lock 14. The latch 141 can be controlled by the lock 14 to rotate out of the receiving space 110. A tab 1161 protrudes from the top board 116 away from the outer board 115. One of the displays 20 is rotatably installed on the outer board 115, near the top board 116. The base board 111, the first side board 112, the second board 114, the outer board 115, the top board 116, and the support board 117 cooperatively define a mounting space, for installing a keyboard, a cashbox, and other apparatus. 55

The cover 12 comprises a base plate 120, a first side plate 121, a second side plate 123, a top plate 126, and a mounting bracket 124. The first side plate 121 and the second side plate 123 perpendicularly extend inward from two opposite sides of the base plate 120. The top plate 126 protrudes inward from a top edge of the base plate 120 and is attached to the first side plate 121 and the second side plate 123. A notch 1261 is defined in a middle portion of the top plate 126. The other display 20 is rotatably installed on the outside of the top of the cover 12 by a connecting bracket 21 extending through the notch 1261 and fixed to the base plate 120. Two pairs of fixing pillars 1212 respectively protrude from a top and a bottom of the base plate 120, near the first side plate 121. Each fixing pillar 1212 defines a connecting hole 1215 perpendicular to the base plate 120. Two connecting portions 122 protrude from inner sides of the first side plate 121 and the second side plate 123. 60

The mounting bracket 124 comprises a mounting plate 1242 parallel to base plate 120, two extending plates 1245 extending from two opposite side edges of the mounting plate 1242 toward the base plate 120, and two fixing plates 1247 respectively extending outward from edges of the extending plates 1245 away from the mounting plate 1242. The fixing plates 1247 are fixed on the connecting portions 122, respectively. The base plate 120, the connecting portions 122, and the mounting bracket 124 cooperatively define a housing space 127. The circuit board 30 is received in the housing space 127, with connectors of the circuit board 30 facing up. A locking hole 1241 is defined in a middle of the fixing plate 1247 near the second side plate 123. A storage device mounting bracket 1248 is installed on a middle portion of the outer surface of the mounting plate 1242. The storage device mounting bracket 1248 is U-shaped and defines a top opening receiving groove 1250 (shown in FIG. 5) for receiving the storage device 40. Two fixing portions 1251 are respectively formed on tops of two opposite sides of the storage device mounting bracket 1248. The storage device 40 can slide into the receiving groove 1250 and a resilient handle 41 coupled to an end of the storage device 40 can be latched to the fixing portions 1251. 65

3

Each hinge **13** comprises two fixing blocks **131**. Each fixing block **131** is rotatably connected to a plurality of connecting sheets **132**. The connecting sheets **132** of one fixing block **131** overlap with the connecting sheets **132** of the other fixing block **131**; and the connecting sheets **132** of the two fixing blocks **131** are rotatably connected to a shaft **135** extending through the connecting sheets **132**. Two fixing sheets **133** respectively extend from a top and a bottom of each fixing block **131**, near the corresponding connecting sheets **132**. Each fixing sheet **133** defines a through hole **134**.

FIG. 3 illustrates an assembled, isometric view of the POS device of FIG. 1. In assembly, one of the fixing blocks **131** of each hinge **13** can be placed into the receiving space **110**, adjacent to the first side board **112**, and between one pair of fixing pillars **1171**. The through holes **134** of the fixing sheets **133** directly face the corresponding connecting holes **1173** of the fixing pillars **1171**. A plurality of fasteners can extend through the through holes **134** to engage in the connecting holes **1173**, fastening the hinges **13** to the main body **11**. Another fixing block **131** of hinges **13** can be placed into the cover **12**, adjacent to the first side plate **121**, and between the corresponding pair of fixing pillars **1212**. The through holes **134** of the fixing sheets **133** directly face the corresponding connecting holes **1215** of the fixing pillars **1212**. A plurality of fasteners can extend through the through holes **134** to engage in the connecting holes **1215**, fastening the hinges **13** to the cover **12**. Then, the cover **12** is rotatably installed to the main body **11**.

FIG. 4 illustrates an isometric view of the POS device at a working state. Before working, the cover **12** can be rotated to cover the main body **11**. The first side plate **121** can be rotated to attach the first side board **112**, the second side plate **123** can be rotated to attach the second side board **124**, and the tab **1161** of the top board **116** can cover the notch **1261** of the top plate **126**. The lock **14** can be operated to control the latch **141** to extend through then lock with the locking hole **1241** of the cover **12**. Then, the cover **12** is fastened to the main body **11**; the storage device bracket **1248** extends through the opening **118** to be received between the outer board **115** and the support board **117**.

FIG. 5 illustrates an isometric view of the POS device in maintenance. During maintenance, the lock **14** can be operated to control the latch **141** to release the locking hole **1241**. The cover **12** can be rotated away from the main body **11**. The handle **41** can be operated to remove the storage device **40** from the receiving groove **1250**. The mounting bracket **124** can be taken down, for further maintenance of the circuit board **30**.

In another embodiment, each fixing block **131** and the corresponding connecting sheets **132** can be an organic whole.

The embodiments shown and described above are only examples. Many details are well known by those in the art therefore, many such details are neither shown nor described. Even though numerous characteristics and advantages of the present technology have been set forth in the foregoing description, together with details of the structure and function of the present disclosure, the disclosure is illustrative only, and changes may be made in the details, especially in matters of shape, size and arrangement of the parts within the principles of the present disclosure up to, and including the full extent established by the broad general meaning of the terms used in the claims. It will therefore be appreciated that the embodiments described above may be modified within the scope of the claims.

4

What is claimed is:

1. A point of sale (POS) device comprising:
  - a main body defining a receiving space;
  - a cover rotatably connecting with the main body and covering the receiving space;
  - a circuit board attached to an inside of the cover;
  - a storage device coupled with the circuit board;
  - two displays respectively attached to the main body and the cover; and
  - a lock capable of fastening the main body to the cover.

2. The POS device of claim 1, wherein a pair of hinges are disposed between the cover and the main body, each hinge comprises two fixing blocks and a plurality of connecting sheets extending from each fixing block, the connecting sheets of one fixing block is rotatably attached to the connecting sheets of another fixing block, two fixing sheets extend from two opposite ends of each fixing block, for connecting with the main body or the cover.

3. The POS device of claim 2, wherein each fixing block is rotatably attached to the corresponding connecting sheets, the connecting sheets of the two fixing blocks are overlapped and rotatably attached to each other by a shaft extending through the connecting sheets.

4. The POS device of claim 2, wherein two pairs of fixing pillars extend from each of the main body and the cover.

5. The POS device of claim 4, wherein each fixing sheet defines a through hole, each fixing pillar defines a connecting hole, a plurality of fasteners respectively extends through the through holes to engage in the corresponding connecting holes.

6. The POS device of claim 5, wherein the main body comprises a base board, a first side board and a second side board formed at two opposite edges of the base board, an outer board formed at an end of the base board, a top board connected to top portions of the first side board, the second side board, and the outer board, a support board is perpendicularly attached to the base board between the first side board and the second side board, the fixing pillars of the main body extend from a side of the support board away from the outer board, near the first side board.

7. The POS device of claim 6, wherein the cover comprises a base plate, a first side plate and a second side plate perpendicularly extending inward from two opposite side edges of the base plate, a top plate extending perpendicularly inward from a top edge of the base plate, the fixing pillars of the cover extend from an inside surface of the base plate, near the first side plate.

8. The POS device of claim 7, wherein the cover further comprises a mounting bracket attached to the inside surface of the base plate, two connecting portions extend from inner sides of the first side plate and the second side plate, the mounting bracket comprises a mounting plate directly facing the base plate, two extending plates extend toward the base plate from two opposite side edges of the mounting plate, two fixing plates extend from an edge of the extending plate away from the mounting plate and are fixed on the corresponding connecting portions, the circuit board and the storage device are attached to the mounting plate of the mounting bracket.

9. The POS device of claim 8, wherein a locking hole is defined in a middle of one of the fixing plates located near the second side plate, the lock comprises a latch controlled to extend through the locking hole to be locked in the locking hole.

10. The POS device of claim 6, wherein an opening is defined in a middle of the support board to receive the storage device therethrough.

\* \* \* \* \*